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(71) Applicant (for all designated States except US): COS-MOTAN INC. [KR/KR]; 275-6, Yangjae-dong, Seocho-gu, Seoul 137-130 (KR).

(72) Inventor; and

(75) Inventor/Applicant (for US only): CHOI, WonYong [KR/KR]; 501-1002, Jugong APT., 6, Byeoryang-dong, Gwacheon-si, Gyeonggi-do 427-800 (KR).

(74) Agent: PARK, HeeJin; 401, Miele Haus Building, 607-10 Yeoksam-dong, Gangnam-gu, Seoul 135-080 (KR).

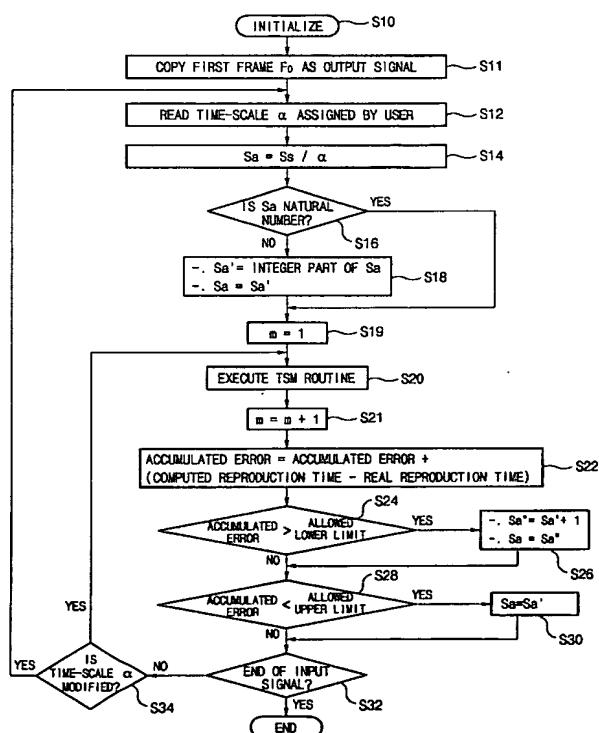
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(54) Title: TIME-SCALE MODIFICATION METHOD FOR DIGITAL AUDIO SIGNAL AND DIGITAL AUDIO/VIDEO SIGNAL, AND VARIABLE SPEED REPRODUCING METHOD OF DIGITAL TELEVISION SIGNAL BY USING THE SAME METHOD



(57) **Abstract:** **Problem:** A method capable of ensuring a synchronization between an audio signal and a video signal both of which are modified in time-scale is needed. **Solution:** When analysis shift $Sa = Ss / \alpha$, where Ss is synthesis shift and α is a designated time-scale (variable speed ratio), has a decimal value, two natural numbers which are nearest to the decimal value are selected as a modified analysis shift Sa' and a compensated analysis shift Sa'' , respectively. In time-scale modification of source audio samples to vary playback speed by dividing them into overlapped successive analysis windows, the modified analysis shift Sa' and the compensated analysis shift Sa'' are alternately applied whenever a predetermined condition is met. The time difference between an estimated playback time and a real playback time of the time-scale modified audio signal is accumulated. The case that the predetermined condition is met is a case than an accumulated time difference goes beyond an upper threshold or a lower threshold of an allowed error range. In a processing of varying the playback speed of an AV signal, if a real variable speed ratio of a playback-speed-varied video signal is given as a target variable speed ratio of an audio signal to vary the playback speed of the audio signal, a synchronization between the video signal and the audio signal can be obtained. By applying this technology to the digital TV or TV phone, consecutive watch of the broadcasting signal for a phone-break time is possible. Catch-up for the currently received broadcasting signal is also possible through a high speed playback mode after a low speed playback mode initiated from a time of the past or the present.

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